

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested. Claims 1, 2, 4, 5 and 7 are amended, and new claims 8-10 are added. Claims 1-10 are pending in the application.

The telephonic interview with Examiner Divecha on February 12, 2007 is acknowledged with appreciation. During the telephonic interview, the outstanding rejections under 35 USC §§101 and 103 were discussed, as well as proposed amendments.

The §101 Rejection

Claim 5 has been amended to explicitly specify that “the channel adapter is implemented as an integrated circuit.” Support for this amendment is found at page 5, line 13, which specifies “[t]he HCA 12, implemented for example as an application-specific integrated circuit”.

Claim 5 as amended explicitly requires the channel adapter to be implemented in hardware, namely in the form of an integrated circuit. Hence, claim 5 as amended clearly specifies a “machine”, namely an “integrated circuit”. Consequently, the arguments in the December 14, 2006 Final Action on page 11 that “the claim as a whole is fully directed towards a mere computer program” are moot because the claim requires the channel adapter be implemented as a machine, namely an “integrated circuit”.¹

¹ Although moot in view the foregoing amendments, Applicant notes that the Examiner has failed to cite any legal authority (e.g., legal opinions) that supports the Examiner’s position that software-based inventions are nonstatutory. In fact, current Federal Circuit caselaw suggests the contrary (*see, e.g., AT&T v. Excel Comm.*, 50 USPQ2d 1447, 1454 (1999) (“it is now clear that computer-based programming constitutes patentable subject matter so long as the basic requirements of §101 are met.”); *In re Alappat*, 31 USPQ2d 1545, 1558 (Fed. Cir. 1994) (*en banc*) (“such programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.” “[A] computer, like a rasterizer, is apparatus not mathematics”)).

Since the integrated circuit of claim 5 is clearly a “machine”, and it is well settled that a “machine” is statutory subject matter,² the §101 rejection should be reversed.

The §103 Rejection

Each of the independent claims 1 and 5 as amended specify storing by the channel adapter an entry specifying a transmitted work queue entry “in response to completed transmission by the channel adapter into the server network system of a corresponding transmit packet associated with the transmitted work queue entry.” Claims 1 and 5 as amended also specify detecting by the channel adapter an acknowledgement from the server network system. Hence, the claims as amended explicitly specify that the first linked list specifies a transmit sequence of the transmitted work queue entries “having been transmitted by the channel adapter into the server network system”.

Regarding the Interview Summary mailed February 21, 2007, the undersigned respectfully disputes the assertion on page 3 with respect to “inclusion of the manner in which the transmission is performed” that “applicant clearly disagreed because the specification or the disclosure may not describe such a process and/or the invention may not be in that field.” In fact, claims 4 and 6 specify detecting the acknowledgement according to InfiniBand™ protocol, and the specification describes on pages 5-9 the manner in which transmit packets are generated and output into the InfiniBand™ network 10 by the channel adapter 12 in response to reception of a WQE. Further, page 10, lines 9-11 describe with respect to Fig. 3A that “as each packet for a WQE (e.g., WQE5) is transmitted by the HCA 12 in step 100, the table manager 22 adds in step 102 a corresponding table entry 24 (e.g., in location 4).”

²Claims directed to a “machine” seldom raise a §101 issue. *E.g.*, *AT&T Corp. v. Excel Comm.*, 50 USPQ2d 1447 (Fed. Cir. 1999); *In re Alappat*, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994) (*en banc*); *In re Lowry*, 32 USPQ2d 1031, 1034-35 (Fed. Cir. 1994); *In re Warmerdam*, 31 USPQ2d 1754, 1760 (Fed. Cir. 1994); *Ex parte Bilski*, No. 2002-2257 (Sept. 26, 2006 USPTO Bd App. Int.) (“Informative Opinion”); *Ex parte Lundgren*, 76 USPQ2d 1385, 1388 (USPTO Bd. App. Int 2005) (Smith, J., dissenting).

It is respectfully submitted that Kagan neither discloses nor suggests the storage of the transmitted work queue entry in response to completed transmission by the channel adapter of the corresponding transmit packet into the server network system, as claimed. Further, as conceded in the Final Action, Kagan illustrates a chain or linked list of “DMA descriptors, i.e., work items (fig. 2) *prepared in the memory*,” as opposed to the claimed transmit sequence of transmitted *work queue entries* having respective transmit packets transmitted by the channel adapter *into the server network system*. For this reason alone, the §103 rejection should be withdrawn.

Further, Avery discloses the number or size of acknowledgements, but does not disclose or suggest the claimed acknowledgement *sequence*. As described on pages 10-12 of the March 27, 2006 Appeal Brief and pages 12-14 of the September 19, 2006 Amendment, Avery explicitly specifies that the DMA scoreboard 770 keeps tracks of outstanding DMA requests based on the size of the data transfer or the number of prefetches. Further, the next address field 772 is used to calculate a new virtual address that is “pushed into work queue entry 706” in the event that “*prefetch data remains to be retrieved*” (col. 11, lines 26-32).

In response to the query on pages 7-8 that “what will be the point of detecting the acknowledgement if its [sic] not stored in the data structure and how will one detect or track the outstanding DMA requests”, the Examiner is respectfully directed to col. 10, lines 63-65 and col. 11, lines 16-25: Avery specifies that “prefetching will require additional read requests to be generated” and that “the DMA scoreboard is updated by adding the prefetch size stored in the field 774 to the current address and storing the result in the next address field 772. A check is made in step 926 to determine *whether the DMA transfer size* [775] is equal to to the work queue entry size request 710. *If the sizes are equal, the process finishes in step 928.*”. However, [i]f prefetch data *remains to be retrieved*, the next prefetch request is initiated by combining the next address in DMA scoreboard field 772 with the R-Key 764 ... to produce a new virtual address which is pushed into work queue entry 703. The process then returns to step 920 in which the new prefetch read request is generated. *Operation continues in this manner until the size 710 in the work queue entry 703 is exhausted as determined in step 926*”.

Hence, Avery teaches that if the DMA transfer size 775 does not equal the work queue entry size request 710, the next address field 772 is used to generate the next prefetch address; if the DMA transfer size equals the work queue entry size request 710, the process is terminated. In other words, Avery provides only a summation (summary) of how many acknowledgements have been received, with no disclosure or suggestion of storing the actual sequence of acknowledgements.

As apparent from the foregoing, the size of a transfer as described by Avery does not provide a teaching or suggestion of the sequence of the transfer, as claimed. For this reason alone, the §103 rejection should be withdrawn.

In view of the above, it is believed this application is in condition for allowance, and such a Notice is respectfully solicited.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R. 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including any missing or insufficient fees under 37 C.F.R. 1.17(a) or 1.17(e), to Deposit Account No. 50-0687, under Order No. 95-507, and please credit any excess fees to such deposit account.

Respectfully submitted,
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